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| 10/645,261      | 08/20/2003  | Weixun Cao           |                     | 7334             |

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EXAMINER

CORRIELUS, JEAN B

|          |              |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2611

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| MAIL DATE | DELIVERY MODE |
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07/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/645,261

Applicant(s)

CAO, WEIXUN

Examiner

Jean B. Corrielus

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-10, 12, 13, 16 and 17 is/are allowed.
- 6) ☒ Claim(s) 23-29 is/are rejected.
- 7) ☒ Claim(s) 4, 11, 14, 15 and 18-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/07 has been entered.

### *Claim Objections*

2. Claims 4, 11, 14-15, 18-22, 27 and 29 are objected to because of the following informalities: claim 4, the additional limitations recited in the claim appear to be directed to a method claim. However, it is noted that claim 4 depends indirectly to claim 1, which is an apparatus claim. The claim should be amended presented as presented and line 2 of the claim previously as presented, after "unit" a limitation such as "to produce a demodulated sample" should be inserted so as to provide antecedent basis for subsequent recitation in the claim.

Claim 11 is directed to an apparatus claim. However, the limitations recited in the claim are directed to a method claim. In addition, line 4 after "gain", "unit/circuit" or equivalent language should be inserted.

Claim 18 line 3, after "comprising", "providing" should be inserted.

Claim 27 is directed to a method claim. However, the limitations recited in the claim are directed to an apparatus claim. Claim 27 recites "a phase detector to compare two phase modulated signals" the claim further recites a further input coupled to the phase detector to provide a reference frequency. However, it is noted that the phase detector only compares two frequency signals, i.e., "the reference frequency signal and the output of the frequency divider".

Claim 29 recites an adaptive phase offset is used to change the phase modulated baseband signal which is applied to the input of a controller of the PLL. However, fig. 5 only shows the output of the phase offset is applied only to adder 531 not to the controller. Appropriate correction is required.

### ***Specification***

3. Applicant's response has overcome the objection to the specification.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 23-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23; lines 6-7, the limitation "the baseband amplitude signal and the phase signal **have been decomposed in terms of polar coordinates**" is unclear because the

amplitude and phase signals are polar representation (coordinates) of a "main signal" and therefore can not be decompose in terms of polar coordinates.

Note that any claim whose base claim is rejected is likewise rejected.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sander et al US patent Application Publication S/N US2004/0208157A1 in view of Ahn et al US publication No. 20020080891 and further in view of Minoda et al US patent no. 5,661,425.

Sander et al disclose a method and apparatus, see for instance Fig. 12 comprising predistorting a baseband amplitude signal using circuit 1211 and a phase signal using circuit 1213 in accordance with a distortion parameter see paragraphs 0050, 0051, and 0101, in addition, note at paragraph 0050, Sander et al teaches that the purpose of the distortion is to correct for non-linearity, it would inherently includes all non-linear devices in the transmitter such as amplifiers and the VCO, frequency offset is also provided by way of circuit 1232; a PLL is provided, responsive to the phase signal see fig.12; modulating the power amplifier 1220 with the amplitude signal and an output coupled from the VCO 1831. Sander further teaches that the amplitude and phase signals are (have been decomposed in term of) polar coordinate see output of circuits

1209, 1809 and 2013. However, Sander et al do not teach that the distortion parameters are determined based on a sample of an output of the transmitter in addition, it fails to teach that the PLL includes phase gain and phase offset. Ahn et al teaches a system in which the distortion parameters are determined based on a sample of an output of the transmitter see fig. 2. Given that fact, it would have been obvious to one skill in the art to modify Sander by generating the distortion parameter based on the output of the transmitter in order to accurately detect for variation in the signal power I so as to provide proper compensation. In addition, Minoda et al teaches a PLL provided with "phase servo gain" (phase gain) and "phase correction" (phase offset) see inputs to table 15 of fig. 4. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Sander et al and Ahn in order to correct the PLL clock as taught by Minoda see col. 4, lines 38-39.

***Allowable Subject Matter***


8. Claims 1-3, 5-10, 12-13, 16 and 17 are allowed.
9. Claims 4, 11, 14, 15, and 18-22 would be allowable if amended to overcome the objection set forth above.
10. Claim 24-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 2611

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jean B Corrielus  
Primary Examiner  
Art Unit 2611

7-3-07